

Mother's Knowledge, Attitude and Practices Regarding Dental Caries And Oral Hygiene Among Children (Age 1 To 5 Years) in Civil Hospital, Karachi

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Abstract

Background: Dental caries is an infectious disease of teeth, which affects 60-90% of children worldwide between the ages of 2 to 11 years and mother is the major primary source of infection. The aim of this study is to determine knowledge, attitude and practices of mothers regarding oral hygiene and dental caries among children less than five years of age in Civil Hospital, Karachi Pakistan.

Methods: A Cross sectional study was conducted among mothers in Civil Hospital, Karachi from June to December 2014. A total of 281 mothers were selected by using Consecutive sampling technique. Data were collected by using a semi structured pretested questionnaire. Factors related to knowledge, attitude and Practices regarding dental caries and oral hygiene were identified by applying logistic regression.

Results: Majority (91.1%) of mothers had inadequate knowledge. Half (55.5%) of the mothers had positive attitude and 65% of mothers had improper practices. After adjusting socio demographic variables, the odds of inadequate knowledge among illiterate mothers were eight times (AOR=8.34, 95% CI 3.98-27.8) more as compared to literate mothers. The other factors showed significant association in multivariate analysis were negative attitude of mothers, household income <10,000 Pakistani rupees, improper practice of divorced/separated mothers as compared to married women.

Conclusions: This study concluded that mother of children less than five years age had inadequate knowledge, negative attitude and improper practices towards dental caries and oral hygiene.

Keywords: Knowledge; Oral hygiene; Dental caries; Mothers; Children 1 to 5 Years

Introduction

Dental caries is an infectious disease that affects 60-90% of children worldwide between the ages of 2 to 11 years [1]. The children under 5 years of age usually spend most of their time with their parents and caregivers, especially mothers, even when they join playgroups [2].

The prevalence of dental diseases and factors related to it were found different between countries and within country. Socio-behavioral and environmental factors mainly play a significant role in the occurrence of dental diseases. Dental caries is more prevalent in Asia and Latin America while less severe in Africa. It is relatively high in America as compared to other countries. The main reason of dental caries in developing countries rural areas is consumption of processed sugar and inadequate oral hygiene [3].

About 90% of oral diseases are left untreated in Pakistan because it is not taken as a serious health problem. The ignorance of seeking treatment of dental caries due to lack of awareness may lead to 90% of extraction of teeth [4]. Childhood dental caries is completely dependent on their parent because they are the gatekeepers who decide whether to take them to the dentist for treatment or not. Inquiry showed that Children's from younger parents with low socioeconomic status and lower level of education had less potential to visit dental clinics, and more prone to oral disease [5].

The American Dental Association (ADA) recommends that parents wipe their child's gums with clean cotton after each feeding, and tooth brushing should be started when the first tooth erupts with a baby toothbrush, along with low sugar consumption and not sleeping with

bottles. The child must have dental visit at the age of 1 year followed by regular checkups for every 6 months [6].

Research study showed that motivating mothers for good practices of oral health and adopting a better lifestyle in general may produce positive changes and increase in long term benefits for both mother and child's health [7]. Without having basic knowledge of caries risk factors, mothers of the children with primary teeth face difficulty in maintaining their oral hygiene status and it will become difficult to implement effective strategies for caries prevention [8].

Mother's knowledge, attitude and practices regarding child's oral health are very important, but there is no adequate published data published in Pakistan. This study is unique to determine knowledge, attitude and practices of mothers about the oral health of their offspring, and it is helpful for the development and implementation of long term oral health awareness programs for mothers related to caries prevention in childhood.

Objective

The objective of this study is to determine knowledge, attitude and practices of mothers regarding oral hygiene and dental caries of their children (1 to 5 years age) in Civil Hospital, Karachi Pakistan.

Methodology

Study area, design and period

A cross sectional study was conducted among mothers at Civil Hospital Karachi Pakistan from June to December 2014.

Sample size and sampling technique

A sample size of 281 mothers was calculated by using the proportion of mother's knowledge 24% [9] with 95% Confidence Interval and 5% margin of error. The data was collected by using Consecutive sampling technique.

Instrument and data collection

The mothers above 18 years of age having a child (1to 5 years) were included in the study and were interviewed by using a semi structured questionnaire. The questionnaire was based on socio-demographic characteristics of mothers, knowledge, attitude and practices regarding dental caries and oral hygiene and their pattern of utilizing health care services.

The questionnaire was designed in English and translated into local language (Urdu) and back translated into English to check for language ambiguities .About 15% of sample size was pretested in similar setting.

The data was collected after taking written consent from the mothers and they were informed about the purpose and benefits of the study.

Scoring

A scale was used in measuring knowledge which was based on thirteen items containing statements about dental caries and oral hygiene. For each correct answer a score of 1 point was given, while a score of 0 (zero) point was used for incorrect or don't know answer. A cut off point for inadequate knowledge was 1-6 score and a score of 8 points or more were given for adequate knowledge. Attitude scale was based on eleven opinion statements relevant to the dental caries and oral hygiene. Each correct response was scored as 1 while other responses, such as 'incorrect' or don't know', was scored as 0 (zero). The cut off points for negative attitude was 1-5 score and a score of 6 points or more was given for positive attitude. Practice scale was based on ten questions relevant to the dental caries and oral hygiene. Each correct response was scored as 1 while other responses, such as 'incorrect' or don't know', were scored as 0 (zero). The cut off points for bad practice will be 1-5 score and a Score of 6 points or more was given for good practice.

Data management and analysis

The data collected was entered by double entry method for removing the missing value or checking error rate which was <0.02%. The cleaning and coding of the data was done prior to analysis using Statistical package for social science (SPSS) version 16. Descriptive statistics of socio-demographic variable, knowledge, attitude and practice factors were presented as mean, standard deviation and frequency percentages.

For Inferential statistics, scores regarding knowledge, attitudes and practices have been converted into categories i.e. adequate/In-adequate knowledge, positive/negative attitude and good/bad practices respectively. Association between the converted scores and other independent variables were determined through logistic regression analysis. Adjusted odd ratio and their 95% confidence intervals for the presence of knowledge, attitude and practice towards oral hygiene and dental caries were also be obtained. The Independent variables having p-value ≤ 0.25 were included in the multivariate analysis. The P-value of less than <0.05 has been considered significant.

Ethical consideration

The ethical approval was obtained from the Institutional Review Board Dow University of Health Sciences Karachi. A written consent was obtained from the study participants

Results

Socio-demographic variables

The mean age of mothers was 29 ± 4.1 years. Majority (90%) participants were married. About 51% mothers had more than two children. Regarding educational status 57% of mothers were illiterate. About 20% women were working on daily wages, while 68.7% were earning less than 10,000 Pakistani rupees. Majority (86.3%) of mothers were Muslims by religion. Regarding addiction, 33.1% mothers addicted to betel nut, 12.1% pan, 2.8% Gutka and 2.5% addicted to Naswar (Table 1).

Mean score of knowledge, attitude and practices about dental caries and oral hygiene were 8.9% (SD ± 2.47), 55% (SD ± 3.0), 34.9% (SD ± 4.26) respectively. Majority of mothers had inadequate knowledge (91.9%). About 44.5% had negative attitude and 65.1% had bad practices towards oral hygiene.

Knowledge

Majority (85%) of mothers heard about dental caries while only 4.6% had knowledge about cause of dental caries. Only 5% mothers knew that regular brushing with routine dental checkup can prevent child from caries. About 28.5% knew that the dental plaque and only 1.8% reported that plaque can cause tooth decay and bleeding gums. Only 39.5% of mothers knew that brushing is necessary twice a day. About 39.1% heard about fluoride and 13.9% reported that fluoride can strengthen teeth and prevent caries, 96.7% of respondent did not know that they should supervised their child during brushing until the age of 10 years. The sources of knowledge for the surveyed mothers were electronic media (advertisement) 56.1%. About 18% mothers benefited with the people around them such as friends or family (Table 2).

| S.No | Characteristics | Frequency (n) | Percentage (%) |
|------|---|---------------|----------------|
| 1 | Mothers age (years) Mean (± SD)[§] | | |
| | 29 (± 4.1) | | |
| | 18-29 | 144 | 51.8 |
| | 30-39 | 137 | 48.8 |
| 2 | Marital status | | |
| | Married | 255 | 90.7 |
| | Divorced | 26 | 9.3 |
| 3 | No of children | | |
| | ≥ 2 | 143 | 49.1 |
| | <2 | 138 | 50.9 |
| 4 | Education | | |
| | Literate | 121 | 43.1 |
| | Illiterate** | 160 | 56.9 |
| 5 | Occupation | | |
| | Working mothers | 56 | 19.9 |
| | Non -working mothers | 225 | 80.1 |
| 6 | Total house hold income(PKR)[†] | | |
| | ≤ 10000 | 193 | 68.7 |
| | >10000 | 88 | 31.3 |
| 7 | Religion | | |
| | Muslim | 251 | 89.3 |
| | Non -Muslim [†] | 30 | 10.7 |
| 8 | Chewing habits | | |
| | Yes | 142 | 30.2 |
| | No | 139 | 49.5 |

Table 1: Socio demographic characteristics of study participants (n=281) [†]PKR (Pakistani rupee), ^{**}Illiterate (cannot read and write), [†]Non-Muslim (Hindus, Christians), SD (Standard deviation)

| Variable | Knowledge | | | Attitude | | | Practices | | |
|---------------------------------|----------------------|----------------------|---------|-------------------|----------------------|---------|---------------|----------------------|---------|
| | Inadequate knowledge | Unadjusted OR(95%CI) | p-value | Negative attitude | Unadjusted OR(95%CI) | p-value | Bad practices | Unadjusted OR(95%CI) | p-value |
| Mothers Age (years) | | | | | | | | | |
| 18-29 | 136 | 0.47 (0.15-1.48) | 0.20 | 68 | 0.79 (0.49-1.27) | 0.36 | 98 | 1.39 (0.70-2.77) | 0.34 |
| 30-39 | 120 | 1 | | 57 | 1 | | 85 | 1 | |
| Marital status | | | | | | | | | |
| Divorced | 26 | 1.09 (1.06-1.15) | 0.14 | 14 | 1.43 (0.51-3.98) | 0.48 | 22 | 3.21 (1.07-19.67) | 0.02 |
| Married | 230 | | | 111 | 1 | | 161 | 1 | |
| No of children | | | | | | | | | |
| ≥2 | 124 | 1.35 (0.59-3.09) | 0.48 | 66 | 1.01 (0.46-2.20) | 0.97 | 94 | 1.92 (0.96-3.83) | 0.06 |
| <2 | 132 | 1 | | 59 | 1 | | 89 | 1 | |
| Education | | | | | | | | | |
| Illiterate** | 160 | 9.43 (3.27-27.20) | <0.001 | 107 | 10.45 (5.27-20.6) | <0.001 | 140 | 11.49 (5.66-23.1) | <0.001 |
| Literate | 96 | 1 | | 81 | | | 43 | 1 | |
| Occupation | | | | | | | | | |
| Working mothers | 42 | 0.35 (0.12-1.00) | 0.08 | 17 | 1.14 (0.69-1.89) | 0.59 | 155 | 0.93 (0.42-1.98) | 0.81 |
| Non –Working | 214 | 1 | | 108 | 1 | | 28 | 1 | |
| House hold income (PKR)* | | | | | | | | | |
| ≤10000 | 191 | 6.72 (1.39-32.3) | <0.001 | 108 | 2.28 (1.04-4.99) | 0.03 | 102 | 2.24 (1.08-4.62) | 0.02 |
| >10000 | 65 | 1 | | 17 | 1 | | 91 | 1 | |
| Religion | | | | | | | | | |
| Muslim | 226 | 0.71 (0.33-1.52) | 0.38 | 111 | 0.79 (0.36-1.76) | 0.57 | 160 | 0.72 (0.24-2.15) | 0.56 |
| Non -Muslim† | 30 | 1 | | 14 | 1 | | 23 | 1 | |

Table 2: Comparison of knowledge, attitude and practices levels' regarding dental caries and oral hygiene by socio-demographic characteristic (un-adjusted)

| Variable | Knowledge | | | Attitude | | | Practices | | |
|---------------------------------|----------------------|------------------|---------|-------------------|--------------------|---------|---------------|--------------------|---------|
| | Inadequate knowledge | AOR (95%CI) | p-value | Negative attitude | AOR (95%CI) | p-value | Bad practices | AOR (95%CI) | p-value |
| Mothers Age (years) | | | | | | | | | |
| 18-29 | 136 | 0.60 (0.20-1.78) | 0.36 | 68 | 1.03 (0.53-2.00) | 0.92 | 142 | 1.34 (0.78-2.32) | 0.23 |
| 30-39 | 120 | 1 | | 57 | 1 | | 41 | 1 | |
| Marital status | | | | | | | | | |
| Divorced | 26 | 1.04 (0.82-2.82) | 0.26 | 14 | 0.69 (0.25-1.93) | 0.48 | 22 | 4.35 (1.19-15.57) | 0.02 |
| Married | 230 | 1 | | 111 | 1 | | 161 | 1 | |
| No of children | | | | | | | | | |
| ≥2 | 124 | 0.34 (0.18-1.03) | 0.06 | 66 | 1.08 (0.56-2.07) | 0.80 | 94 | 1.34 (0.78-2.32) | 0.28 |
| <2 | 132 | 1 | | 59 | 1 | | 89 | 1 | |
| Education | | | | | | | | | |
| Illiterate** | 160 | 8.34 (3.98-32.8) | <0.001 | 107 | 10.61 (5.24-20.72) | <0.001 | 140 | 11.56 (5.52-23.45) | <0.001 |
| Literate | 96 | 1 | | 81 | 1 | | 43 | 1 | |
| Occupation | | | | | | | | | |
| Working mothers | 42 | 0.92 (0.42-1.98) | 0.83 | 108 | 1.29 (0.57-2.91) | 0.54 | 28 | 0.92 (0.42-1.98) | 0.83 |
| Non –Working | 214 | 1 | | 17 | 1 | | 155 | 1 | |
| House hold income (PKR)* | | | | | | | | | |
| ≤ 10000 | 191 | 6.70 (1.98-23.3) | 0.01 | 17 | 2.28 (1.04-4.99) | 0.03 | 91 | 2.27 (1.08-4.62) | 0.02 |
| >10000 | 65 | 1 | | 108 | 1 | | 102 | 1 | |
| Religion | | | | | | | | | |
| Muslim | 226 | 0.29 (0.09-0.89) | 0.08 | 111 | 0.69 (0.25-1.93) | 0.48 | 160 | 1.37 (0.46-4.04) | 0.58 |
| Non -Muslim† | 30 | 1 | | 14 | 1 | | 23 | 1 | |

Table 3: Comparison of knowledge, attitude and practices levels' regarding dental caries and oral hygiene by socio-demographic characteristic (Adjusted) *PKR (Pakistani rupees), ** illiterate (cannot read and write), †Non-Muslim (Hindus, Christians) p-value was calculated by logistic regression and significant at the ≤ 0.05 level.

Attitude

Regarding self-assessment of oral health, 29.4% mothers believed that they have enough knowledge regarding dental caries and oral hygiene. Only 22.4% mothers declared that their children rinse oral cavity after every meal, 63.3% mothers expressed that primary teeth (milk teeth) needs

care and rest of them responded that they did not need any care for teeth which shed off. Only 22.1% respondent knew about the proper technique of brushing and 59.4% mothers thought that brushing is necessary after breakfast and before going to sleep. About 58% felt that oral health need required high priority.

Practices

About 69.8% mothers were cleaned their teeth with toothbrush, 27% reported that they used other than brush such as Maswak, Manjan, toothpaste with finger and 3.2% had never cleaned their teeth, 28.1% were cleaning the tongue regularly. Only 14% respondents were replaced their child's tooth brush after 3 months. Regarding use of fluoridated toothpaste 37.7% of mothers affirmed that they are using it. About 25.3% mothers knew that feeding milk during sleep can cause dental caries, 52% mothers went to dentist when their child experienced toothache while 18.1% were on self medication/home remedies, 14.6% went to general physicians and 15.3% never experienced toothache and 47.3% mothers reported that they had never visited to dentist.

Health care utilization

About 45.2% were using government dental health care services, 30% reported that they were satisfied with the services. About 40.6% experienced that the services are cost effective and 19.6% responded that the services were easily accessible and available. When they asked about "why they avoid visit to dental clinic" 25.3% reported that dental treatment is too costly and 14.9% responded that dental services are not reachable. About 7.1% mothers had fear for receiving dental treatment.

Univariate analysis

Knowledge: The univariate analysis showed that odds of having inadequate knowledge among illiterate mothers were 9 times (OR=9.43, CI=3.27-27.20, p value <0.001) more as compared to literate mothers. The odd of having inadequate knowledge among mothers who had household Income <10,000 Pakistani rupees were 6 times (OR=6.72, CI=1.39-32.3, p value <0.001) more as compared to mothers having house hold income >10,000 Pakistani rupees.

Attitude: The odds of having negative attitude among illiterate mothers were ten times (OR=10.45, CI=5.27-20.6, p value <0.001) more as compared to literate mothers, and odds having negative attitude among mothers who had income <10,000 Pakistani rupees were two times (OR=2.28, CI=1.04-4.99, p value 0.03) as compared to mothers having house hold income >10,000 Pakistani rupees.

Practices: The odds of having bad practice among divorced/separated mothers were three times (OR=3.21, CI=1.07-19.60, p value 0.025) more as compared to married. Odds of having bad practice among illiterate mother were eleven times (OR=11.49, CI=5.66-23.34, value <0.001) more as compared to literate mothers and odds of having bad practices among mothers who had household income <10,000 Pakistani rupee were two times (OR=2.24, CI=1.08-4.62, p value 0.02) more as compared to mothers having household income >10,000 Pakistani rupees (Table 2).

Multivariate analysis

After adjusting socio-demographic variables the odds of inadequate knowledge among illiterates were eight time (AOR=8.34, 95% CI 3.98-32.8) more as compared to literate mothers, the odds of having inadequate knowledge among mothers who had household income <10,000 were 6 times (AOR=6.70, 95% CI=1.98-23.3) more as compare to mothers who had household income >10,000 Pakistani rupees.

The odds of having negative attitude among illiterate mothers were ten times (AOR=10.61, 95% CI=5.24-20.72) more as compared to literate mothers. Odds of having negative attitude among mothers who had household income <10,000 were 2 times (AOR=2.28, 95% CI=1.04-4.99) more as compared to mothers who had household income >10,000 Pakistani rupees.

The odds of having bad practice among divorced/separated mothers were 4 times (AOR=4.35, 95% CI=1.19-15.75) more as compared to

married women. The odds of having bad practices among illiterate mothers were 11 times (AOR=11.56, 95% CI=5.52-23.45) more as compared to literate mothers. The odds of having bad practice among mothers who had household income <10,000 Pakistani rupees were 2 times (AOR=2.27, 95% CI=1.08-4.62) more as compared to mothers who had household income >10,000 Pakistani rupees (Table 3).

Discussion

This study showed that literacy and income are important factors in relation to mothers and child's oral health care. Educated mothers can better take care of their children's oral hygiene. Similar findings have been reported from a study that low education level was strongly associated with a lack of information about oral health issue and lack of accesses to dental care than those who have higher education [10]. Several studies conducted other parts of the world reported that parents of pre-school children did not have sufficient knowledge of caries risk factor and the ways of preventing caries [11-13]. Adequate information about caries prevention and motivation of mothers is necessary to maintain good oral health for preventing dental caries among children.

Low income is considered to be one of the limitations in utilizing dental health care services and not surprisingly our study also reported that mothers with lower household income (<10,000 Pakistani rupees per month) had less knowledge about dental caries than mothers who had higher house hold income. Another study conducted at Michigan stresses the importance of educating the socioeconomically disadvantaged mothers about the ways and means that their children can receive dental care, importance of tooth brushing, prevention of dental caries in general, and routine visits to dental clinics [11]. Furthermore study showed that mother's low income can affect the child's oral health and also leads to diminished utilization of health care services [9].

In our study mothers generally had enough knowledge that high level of sugar consumption can cause dental caries but very few of them were aware of about the role of bacteria in caries etiology, this finding in contrast to some other studies where 47% of the mothers indicated that complex of "bacteria + sugar" was a cause of tooth decay, 35% Mothers stated that cause is bacteria and 27% of mothers linked caries with sugar [14]. In our study very few mothers were familiar about that dental caries can be inherited from their parents. A study showed that phenotyping and/or genotyping methods strongly suggest that a mother is the major source of infection for children [15].

Majority of mothers had inadequate knowledge with regards to duration of brushing, and importance of fluoridated toothpaste .One-fourth of the participant stated that fluoride can prevent tooth decay. This percentage is low in comparison to other similar reports of Blink horn et al. Bernard [16,17].

Our study showed that majority of mothers did not know that the need of parental assistance is necessary up to the age of 7 years; similar findings have been reported from other studies [18,19]. A study reported that 34.2% of the Saudi population gets the oral health information from dentist followed by media [20] whereas our study reported 53% of mothers received information from electronic media (advertisement) while 18% received information regarding dental caries prevention from friends or family.

In present study, mothers had negative attitude about the recommended brushing technique, 22.1%. Studies showed that Latina mothers also have lack knowledge regarding brushing technique such as daily frequency and duration of brushing and importance of fluoridated tooth paste [21,22].

A study reported that mothers had inadequate knowledge on the importance of deciduous teeth. Majority of mothers said that cavities in baby's teeth did not matter as the teeth shed off later [20] whereas in the

present study regarding their attitude 63% mothers reported that primary teeth are important as permanent teeth. This higher response of mothers in our study might be due to bad experience of their children having dental caries. Regarding the attitude towards the collaboration between the general health and oral health majority of mothers reported that it is necessary. Studies also found that the dentist should not only take care for the infant's oral cavity to prevent tooth decay when the baby's has first teeth but the main responsibility goes to mother [23,24]. Furthermore general practitioners and pediatrician should also have conducted similar education to mothers for prevention of dental caries.

In this study, only 25% mothers practices about feeding milk through bottle at night which can cause tooth decay, this is in contrast to some other studied which showed that reason for prolonged bottle feeding included: low knowledge of proper time to stop feeding, belief that young children should drink a high volume of milk, child asks for the bottle at night and parental feeling that the child was too young to not be drinking from a bottle [25]. In particular parents need to know how exactly mothers can avoid to drink milk with bottle during sleep and its damaging effects.

Regarding their practices towards regular visits to a dentist; about (47.3%) of individuals had never been to a dentist whereas others have had an experience of visiting a dentist for some sort of dental complaint, one of the reason behind that mothers did not visit because they have dental anxiety or fear. Many researchers showed quite convincingly those childrens, adolescent' and parent's dental fear are related to avoid dental care and lack of dental care utilization [26-28].

Finding of present study clearly illustrated the limitation of current dental education efforts and the strength of this study is to determine the high risk group which is previously ignored because mothers can play an important role for the prevention of dental caries and to maintain good oral hygiene for their children.

Conclusion

In our study mothers who had inadequate knowledge regarding caries and had bad practices of oral hygiene and not taken care for their children's teeth were less educated, divorced and low income. We have concluded that the need for better education on oral health with emphases on the proper behavior and positive attitude in their daily routine Educational status of mothers and income are significant factors in improving child oral health status.

Recommendations

This study strongly recommended developing oral health awareness program for mothers to impart knowledge to improve their child's oral health. Similar study can be replicated on a large sample to generalize the findings. Uplifting of mothers educational, social and economic status is required for their children oral health status.

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